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By W. B. Bell,

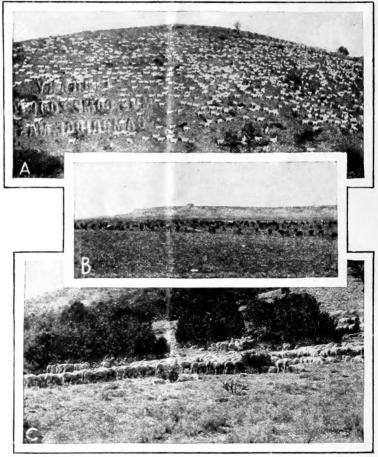
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WOLVES, coyotes, bobcats, mountain lions, bears, and their kind have slaughtered their prey from prehistoric times. Sometimes they pulled down victims in plenty, sometimes their pickings were lean—until the advent of civilized man. In man's introduced herds of cattle, sheep, goats, colts, and other domestic stock, the original rangers of the country found a readily available supply of food to be preyed upon day after day and night after night. What more natural than for the hungry wolf to draw upon the ever-replenished reservoir discovered in the stock corral or on the open range?

The nature of the business on which the predatory kind were engaged was no secret, of course, and gun, trap, and poison were resorted to by the early ranchers, each man for himself, with now and then a community hunt as the needs were more or less pressing. Learning that they had to contend with protectors of their new-found food supply, the prowlers became more and more wary in approach and kill, until what originated in a mere matter of satisfying a craving for food has developed into a war to the death.

Uncle Sam, tired of a drain on his resources of from \$20,000,000 to \$30,000,000 every year through the slaughter of domestic stock by predatory animals, now keeps con-

stantly in the field a force of hunters who are instructed to wipe out these nonproducers. In their place, and safe from their depredations, it is the aim to populate the range country with flocks and herds, and in this way to lower the cost



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Flocks and Herds Now Protected from Predatory Animals.

A, Goats, hardy and valuable introductions to southwestern pastures, formerly were a prey of wolves, coyotes, and bobcats (photograph from Farm Management). B, Cattle, as a substitute on western ranges for buffalo, deer, elk, and antelope, were equally acceptable to wolves and other predatory animals. C, Sheep raising was a precarious undertaking so long as coyotes were at large. Cooperative campaigns against the stock killers have greatly reduced their depredations and have increased correspondingly the yield of wool, hides, and meat.

of production of live stock and of the meat that goes upon the family table.

Losses of live stock from ravages of predatory animals are among the most spectacular and exasperating of those suffered by the stockman. Disease may decimate his flocks and herds, or drought or wintry storms may result in the starvation or death of numbers of valuable animals. None of these disasters, however, arouses such resentment and determination to settle the score as arises in the heart of the ranchman when wolves or other stock destroyers enter corrals or operate on the open range, maining and killing his cattle or other domestic stock.

The average destruction by these animals is estimated to be for each wolf and mountain lion about \$1,000 worth of live stock annually; each coyote and bobcat, \$50 worth; and each stock-killing bear \$500 worth. Statistics may leave the stockman unmoved and uninterested, but a vivid, lasting impression is made when he finds one of his own valuable steers pulled down by a wolf, one of his colts struck down by a mountain lion, the scattered carcasses of several of his sheep killed by coyotes for sheer lust of killing, or a valuable cow maimed or with skull crushed by a blow from the powerful paw of a grizzly.

Since the beginning the hand of the stockman has been raised against predatory animals; and every known means at his disposal—guards, guns, traps, poisons, bounties, and inclosures—have been employed to secure the protection of his flocks or herds from their depredations. Individual efforts have been supplemented of late years by organized endeavor through stockmen's associations and the securing of State and county legislation.

The Government Takes a Hand.

Careful field studies of the abundance, habits, and relationship of predatory animals to the live-stock industry had been made by the Biological Survey of the United States Department of Agriculture for many years. Men with keen insight into animal psychology and the ways and motives of wild creatures had sought out improved methods of luring them to destruction when their presence was detrimental to the live-stock business. The first demonstrations and experiments for the control of wolves and covotes were conducted

during the year 1914–15 in Colorado, Nevada, Texas, Idaho, Oregon, and other western States. In eastern Oregon and northern Nevada, where rabies prevailed among coyotes at that time, a considerable number of hunters were employed to assist in destroying the coyotes in the hope of eradicating this disease.

Depredations upon live stock continued to be so serious and the means of protection then employed afforded so little real relief to the stock-raising industry that in 1915 stockmen took up the matter with their representatives in Congress with the view of obtaining the aid of the Federal Government. On July 1, 1915, the first appropriation—\$125,000—resulted, specifically providing Federal funds to assist in organizing campaigns against predatory animals on national forests and other public lands and to correlate and direct the many agencies at work on the problem along the most effective and economical lines. This had as its object making distinct and permanent headway in relieving the stockmen from the serious drain caused by predatory animals upon the productive capacity of the great western ranges.

The Biological Survey then undertook to build up the necessary field organization. The principal western livestock producing States where the need appeared most urgent were formed into eight predatory-animal districts, each in charge of a predatory-animal inspector. The hunters employed devoted their entire time to the work, and were not permitted to receive bounties from any source. The skins of all animals having fur value taken by the hunters became the property of the Government and were sent in to the Department and sold at public auction, the receipts being turned into the United States Treasury.

Methods of Combat.

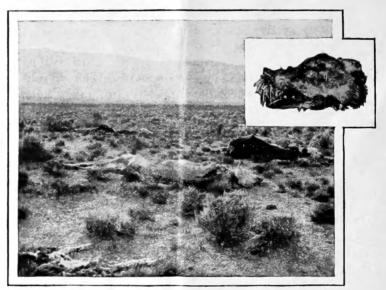
Three methods of destroying predatory animals were followed at this time—shooting, trapping, and poisoning. During the first year 424 wolves, 9 mountain lions, 11,890 coyotes, and 1,564 bobcats were accounted for. Extended trapping and poisoning campaigns were carried on, but the above numbers do not take into consideration animals killed by poison unless the bodies were actually recovered and the skins or scalps secured. Demonstrations and experiments were carried on in localities other than on national forests

and public lands, where predatory animals were causing heavy losses of live stock. Great added impetus and intensity of purpose were given this work by the appearance, spread, and dread destructiveness of rabies, which gained a foothold, particularly among coyotes and wild cats, in southwestern Idaho. To effect the suppression of rabies among wild animals Congress provided an emergency appropriation of \$75,000, which became available March 4, 1916.

Suppression of Rabies.

Special work for the suppression of rabies, made possible through the emergency appropriation, was conducted under the supervision, organization, and methods that were followed in the regular predatory-animal operations. alarming increase of rabies among wild animals, particularly covotes, was attended with danger to live stock and also to human beings. The seriousness of the outbreak is indicated by the fact that during the year the State authorities of Nevada treated more than 60 persons who were bitten by either wild or domestic animals. So great was the dread inspired by the presence of these maddened wild animals that children were accompanied to school by armed guards. Driven by their rabid blindness, covotes entered the vards of dwellings, attacking dogs, cats, human occupants, or any object they might encounter; they entered feed lots and snapped and infected cattle, sheep, and other domestic animals; and also attacked pedestrians, horsemen, and automobiles on the public highways. The destruction of live stock was enormous. In a feed lot at Winnemucca, Nev., a single rabid covote caused the loss of 27 steers. The State of Nevada promptly appropriated \$30,000 to cooperate with the Survey in waging a campaign against the pests in that State. The work was prosecuted vigorously through trapping and extended poisoning operations, the spread of the disease was materially checked, and plans were further developed for its limitation and ultimate suppression.

The movements of live stock between their summer and winter pasture ranges, with accompanying movements of dogs and predatory animals, made possible an extension of the disease into the contiguous territory of eastern Oregon, southern Idaho, northern California, the western half of Utah, and even into eastern Washington. Cattle and sheep



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Results of Rabies Among Coyotes.

During the first year of the rabies epizootic, over \$500,000 worth of live stock were killed by infected predatory animals in Nevada alone—in one feed lot 27 steers were killed by a single rabid coyote. Inset picture: Head of coyote found decorated with porcupine quills—evidence of an unusual encounter, but illustrating the characteristic blind fury of rabid coyotes. The spread of the disease has been checked by the Biological Survey's cooperative campaigns.

were destroyed in large numbers through this extension of the disease, and at least 1,500 persons were bitten by rabid animals. A few cases of rabies were reported in Montana and Wyoming, but prompt action resulted in stamping it out in these localities before it could gain a foothold. The measures employed by the Biological Survey in Nevada were applied in the States mentioned, and with the cooperation of the local authorities further spread of the disease was effectually stopped. The measures for the control and eradication of this dread disease are now so well understood that the occasional sporadic outbreaks are promptly met and stamped out by detailing specially trained men to each locality.

The Kill.

The following typical cases of losses are illustrative of the destructiveness of predatory animals and of the importance of operations for their control: In Colorado a single wolf took a toll of nearly \$3,000 worth of cattle in one year. In Texas two wolves killed 72 sheep, valued at \$9 each, during a period of two weeks. One wolf in New Mexico killed 25 head of cattle in two months: while another was reported by stockmen of the same State to have killed 150 cattle, valued at not less than \$5,000, during six months preceding his capture by a Survey hunter. In Wyoming two male wolves were killed, which during one month had destroyed 150 sheep and 7 colts; another pair were reported to have killed about \$4,000 worth of stock during the year preceding their capture; while another, captured in June, had killed 30 head of cattle during the preceding spring. The county agricultural agent at Coalville, Utah, reported that wolves had taken 20 per cent of the year's calf crop in that section. A wolf taken in New Mexico was known to have killed during the preceding five months 20 yearling steers, 9 calves, 1 cow, 15 sheep, and a valuable sheep dog. In two weeks at Ozona, Tex., two wolves killed 76 sheep.

In Oregon four coyotes in two nights killed 15 purebred rams valued at \$20 each. One flock in Morgan County, Utah, was attacked by three coyotes and \$500 worth of sheep were killed in an hour. Near Antonito, Colo., 67 ewes, valued at about \$1,000, became separated from the rest of the herd and two days later all were found killed by coyotes.

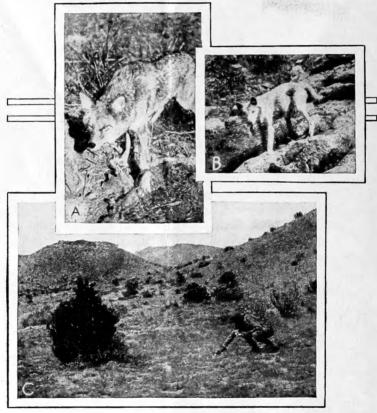
One bobcat in Texas killed over \$300 worth of Angora goats; and another taken at Ozona, Tex., in a month had killed on a single ranch 53 rams, 1 ewe, and 1 goat. In New Mexico a Biological Survey hunter killed a grizzly bear which had killed 32 head of cattle during the spring and was known to have killed 50 cattle the previous year. In Arizona, while following the trail of a mountain lion which was later killed, one of the Department's hunters found the bodies of nine head of cattle which had been killed by this animal.

After a personal investigation in 1917, the president of the State Agricultural College of New Mexico reported that 34,350 cattle, 165,000 sheep, and 850 horses are killed annually by predatory animals in that State, these losses amounting to \$2,715,250. This involves the loss of 16,000,000 rounds of meat and about 1,320,000 pounds of wool.

"Getting" the Chief Offenders.

Whenever especially destructive animals are reported, exceptionally skilled hunters are detailed to capture them. The success that has attended this plan of procedure is evidenced in a great addition to the meat output of the ranges and in the active support of local stockmen.

The effectiveness of the plan of organization for "getting" the most destructive individuals is well illustrated by the



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The Portion of Coyote and Wolf-Trap and Poison,

A, Trapped coyote—more than 250,000 of his ilk have been accounted for in five years by Federal and cooperating hunters. B, The \$10,000 "Split Rock" wolf—trapped in 1920, thus ending a tribute exacted of at least 50 head of cattle annually. C, Expert Biological Survey hunter distributing poisoned baits to rid the range of the wily coyote.

recent success of a Biological Survey hunter in dispatching the notorious "Custer wolf," as it had come to be known. This animal had ranged in a territory about 40 by 65 miles in extent in the vicinity of Custer, S. Dak. During the six or seven years that he is known to have patrolled this territory stockmen who suffered from his depredations estimated that he had killed at least \$25,000 worth of cattle. His killings were particularly exasperating, owing to the number of stock slaughtered at times when he appeared to go on a killing debauch, and to the savage mutilation of others-many cows having been killed for the sole purpose of devouring their unborn calves. Because of this and of the reputation which the animal gained for supernatural cunning in eluding hunters and avoiding skillfully placed traps and temptingly prepared poison baits, unusual efforts had been made by sportsmen to "get him." Stockmen, driven to desperation, offered increasingly large bounties, until there was a price of \$500 on his head. Still he escaped.

Some ranchers gave up hope and said they must board the outlaw until he died a natural death. Others, more sanguine, appealed to the local predatory animal inspector of the Biological Survey for the detail of a hunter, and one of the best trappers and shots in the service was sent on this mission. During several weeks of hide and seek the wolf displayed his uncanny cunning but finally placed his front foot squarely in a trap baited with scent material obtained from another notorious wolf that had been taken by the predatory animal inspector at Split Rock, Wyo. As he dashed away, the trap drag caught firmly on a tree, but the swivel snapped. Dragging the heavy trap with him, the wolf traveled a distance of 3 miles before the hunter, close on his trail, got a shot at 300 yards and ended his career of destruction. Many wolves of similar cunning have been taken by Biological Survey hunters, but this animal was one of the most difficult to capture.

The death of the Custer wolf was hailed with delight by stockmen throughout the region where the depredations had occurred, and has added impetus to a movement for cooperation with the Department in order to meet more adequately the needs of the live-stock industry.

Present Fighting Organization.

During the fiscal year 1920 a force varying from 300 to 400 skilled hunters was employed under the direction of district inspectors of the Biological Survey. The work is now organized into 13 districts, each with a trained inspector in charge, as follows:

and

1.	Arizona.	8.	North Dakota and
2.	California.		South Dakota.
3.	Colorado.	9.	Oregon.
4.	Idaho.	10.	Texas.
5.	Montana.	11.	Utah.
6.	Nevada.	12.	Washington.
7.	New Mexico.	13.	Wyoming.

The hunters of the various districts are paid in part from the Federal Treasury and in part from cooperative funds supplied by State appropriations and from contributions from live-stock organizations and individuals. The amount thus provided by cooperators in the year 1920-21 totaled \$272,509. There has been a steady, consistent increase in the funds provided by State appropriations, by stockmen's associations, and by individuals for cooperation with the Department in this work, as the direct benefits derived from the systematically organized operations became evident. Present prospects indicate that the cooperative funds will be materially increased for the ensuing year.

Study and experimentation by experts have resulted in great improvement in the methods and practices employed in eradicating predatory animals. The poisoning campaigns have increased in number and have been more effectively organized each succeeding year. Their success has been such that in many areas stock growers are urging their application during the appropriate season. These campaigns have been followed by a marked decrease in the number of coyotes in the sections poisoned, with a corresponding decrease in the losses of sheep, cattle, pigs, colts, and poultry. Reports from stockmen indicate that on many ranges and lambing grounds the former heavy annual losses have become negligible or have been entirely eliminated.

Killers Killed.

The following statement shows, by States, the number of true predatory animals—the chief live-stock destroyers—which have been killed and their skins or scalps secured from the time the work was initiated, July 1, 1915, to June 30, 1920, a period of five fiscal years. The table does not include the large number of animals poisoned, as no complete record can be obtained of those that travel so far before the poison takes effect that they can not be located in time to secure skin or scalp. The large numbers of coyote carcasses found by stockmen while riding the range following poisoning operations afford strong evidence in support of the estimate which has been made by the Biological Survey that the animals thus destroyed equal in number the total of all those killed by other means and included in this table.

Predatory animals destroyed in Biological Survey and cooperative campaigns from the initiation of the work, July 1, 1915, to June 30, 1920 (not including animals poisoned).

	True predatory animals killed.						
States.	Bears.	Bobcats and lynxes.	Coyotes.	Moun- tain lions.	Wolves.	Total.	coopera- tive work was begun.*
Arizona	17	695	3,711	182	146	4,751	1919
Arkansas		12			17	29	None.
California	10	796	3,961	26		4,793	1919
Colorado	22	372	5,447	35	109	5,985	1918
Idaho	34	1,323	12,747	9	75	14, 188	None.
Montana	26	360	5, 202		287	5,875	1918
Nevada	3	4,268	23, 286	21	4	27,582	1916
New Mexico	82	1,237	6,056	141	385	7,901	1918
North Dakota			337			337	1920
Oklahoma		9	8		73	90	None.
Oregon	51	1,742	8,594	41	16	10,444	1920
South Dakota	1	58	794		23	876	None.
Texas		1,763	16, 321	6	1,283	13,373	1918
Utah	22	2,141	14,509	69	142	16,883	1918
Washington	23	254	8,362	2		8,641	1918
Wyoming	26	344	6,011	8	376	6, 765	1918
Total	317	15,374	109, 346	540	2,936	128,513	

^{*} The date refers to the fiscal year ended June 30 in each case.

300

Money in the National Pocket.

The sale of skins taken by the Federal hunters has enabled the Biological Survey to turn in to the United States Treasury in the five years ended June 30, 1920, \$240,423.63. Estimates based on information supplied during the last year by farmers and stockmen indicate that the destruction of the approximately 50,000 predatory animals under the direction of the Survey resulted in a saving of live stock for the year valued at about \$6,000,000, calculated on prices prevailing



B17201

Evidence That Uncle Sam's Hunters Get Results.

Each hunter reports his day's catch and sends to the Biological Survey inspector in charge the pelts or scalps of all animals taken. The salvage of skins having fur value, which are sold at public auction, has already netted the United States Treasury over \$240,000.

during the period. The killing of these long-lived predatory animals also results in a saving which is cumulative from year to year. Elimination of predatory animals is saving on the pasture ranges for development to marketable age a great number of cattle, sheep, colts, pigs, and poultry, which formerly fell prey to these animals. This work has so encouraged the live-stock men that they are adding to their flocks and herds as forage for additional animals is provided by the eradication of such range-destroying rodents as prairie dogs, ground squirrels, and related pests.



